REMARKS

The present amendment is made in response to the Office Action dated August 28, 2002 and identified as Paper No. 5. In the Action, the Examiner rejected claims 11-14 and 41 under 35 U.S.C. § 112, ¶ 2 as indefinite, required clarification of claim 41, and rejected claim 39-43 as incomplete for omitting essential steps. Claims 40 and 41 were objected to because of an informality. Claims 1-3, 8, 11, 23-24, 25-27, 32, and 37-38 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,421,806 to Marks et al. ("*Marks*"). Claims 4-5 and 28-29 were rejected under 35 U.S.C. 102(b) as anticipated by, or alternatively obvious under 35 U.S.C. § 103(a) in view of *Marks*. The Examiner also rejected claim 39-40, 42 and 43 under 35 U.S.C. § 103(a) as obvious in view of *Marks*. Claims 1-3, 8, 10-14, 21-22, 25-27, 32, 34-36, and 39-41 were rejected under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,127,094 to Victor ("*Victor*"). Claims 4-5 and 28-29 were rejected under 35 U.S.C. § 103(a) as obvious over *Marks* in view of *Victor*. Claims 6-7, 9, 15-20, 30-31, and 33 were objected to as dependent on a rejected base claim but otherwise allowable if rewritten in independent form. Claims 1-55 remain pending in the application.

With regard to the rejection under section 112, paragraph 2, claims 11 and 13 have been amended to reword the claims as suggested by the Examiner. Claim 41 has been amended to clarify that "the substrate is an electrically conductive material that is heated in a radiofrequency induction field to initiate catalyst activity." Claims 39 and 42 have been amended to recite the step of "curing the homogenous blend by exposing to radiant energy."

With regard to the rejection of claims 1-3, 8, 11, 23-24, 25-27, 32, and 37-38 under 35 U.S.C. § 102(b) as anticipated by Marks, independent claims 1 and 25 have been amended to recite that the blend is prepared from "more than 25 percent based on weight of a bis-phenol-A

derivative." While *Marks* discloses the use of a blend of a 1,2-polybutadiene oligomer with a bisphenol-A derivative and a reactive monomer, the amount of derivative is limited to between "5 to 10 percent by weight (so long as it is not more than about 25% of the vinyl aromatic monomer content)" *Marks* further states that "[i]n general, it is not prefereed to make such additions." Thus, *Marks* only teaches the use of less than about 25 percent of the derivative and expressly teaches away from the use of any more of the derivative. As can be determined from the sample formulations set forth in Examples I through V, the amount by weight of the bisphenol-A derivative disclosed in the homogeneous blend of the present application can exceed sixty percent.

With regard to the rejection of dependent claims 4-5 and 28-29 as anticipated under 35 U.S.C. § 102(b) or, alternatively, obvious under 35 U.S.C. § 103(a) in view of *Marks*, the amendments to independent claim 1 and 25 should also place these claims in condition for allowance.

With regard to the rejection of claims 39-40, 42 and 43 as unpatentable under 35 U.S.C. § 103(a) in view of *Marks*, independent claims 39 and 42 have been amended to recite the step of "curing the homogeneous blend by exposing said blend to radiant energy." As explained in detail in the specification, specific types and amounts of radiant energy are used to cure the homogeneous blend. By contrast, the casual exposure to atmospheric radiation, such as sunlight or background RF, that might occur if the preparation in *Marks* is left unshielded as suggested by the Examiner is insufficient to initiate or activate the free radical mechanism involved in curing the claimed homogeneous blends. Thus, Marks does not, either expressly or implicitly, teach the "curing" of the homogeneous blend by exposing to sufficient level of a predetermined form of radiant energy as now claimed in the application.

With regard to the rejection of claims 1-3, 8, 10-14, 21-22, 25-27, 32, 34-36, and 39-41 under 35 U.S.C. §103(a) as unpatentable over *Victor*, the 1,2-polybutadienes claimed in the present application are not in fact disclosed by that reference. As shown in the figures of the present application, the polymers have pendant 1,2-vinyl functionality and, even when used as copolymers with 1,4-polybutadiene, the diene structures are not conjugated. By contrast, *Victor* discloses "a linear polymer having a molecular weight of at least 1,000, which has a 30 mol % of a conjugated diene unit." Moreover, an aliphatic polymer, such as Applicant's 1,2-polybutadiene material, would not yield the claimed homogeneous blend if milled according to *Victor*. As noted in col. 12, line 42 of Victor, the use of certain polymers is "optional," most likely because their use with ethyl acrylate polymers would lead to inoperative systems. Is it improper hindsight analysis to infer that the butyl acrylates disclosed in *Victor* would be compatible with the claimed monomers, the aliphatic oligomers, or the bisphenol-A structures. Quite simply, there is no showing in *Victor* or any prior art reference that one skilled in the art would anticipate homogeneous blends from the broad diversity of materials disclosed, particularly since many of the combinations would not in fact result in homogenous blends and are often incompatible, even after high shear blending on a mill with aliphatic hydrocarbon polymers.

With regard to the rejection of claims 4-5 and 28-29 under 35 U.S.C. § 103(a) as obvious over *Marks* in view of *Victor*, the amendments to independent claim 1 and 25 should place these claims in condition for allowance.

The Examiner objected to claims 6-7, 9, 15-20, 30-31, and 33 as dependent on a rejected base claim, but allowable if rewritten in independent form. Accordingly, claims 6-7, 9, 15-20, 30-31, and 33 have been rewritten as claims 44-45, 46, 47-52, 53-54, and 55, respectively, to incorporate all of the limitations of the base claim and any intervening claims.

Submitted herewith is a Petition for a three (3) month extension, and a check in the amount of $861.00 to cover the Petition fee and the additional claims. In view of the foregoing amendments, allowance of the present application is believed to be in order, and the Examiner's reconsideration is respectfully requested. If the Examiner believes a phone conference with Applicant's attorney would expedite prosecution of this application, he is respectfully requested to contact him at (315)471-3151.

Respectfully submitted,

Date: February 7, 2003

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VERSION TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 1 was amended as follows:

(1) A curable homogeneous blend comprising:

(a) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) more than 25 percent based on weight of a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(c) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the acrylated bis-phenol-A derivative.

Claim 11 was amended as follows:

(11) A curable blend according to Claim 1 wherein the reactive component is [an aliphatic monofunctional or multifunctional acrylate or methacrylate] selected from the group consisting of: an aliphatic monofunctional acrylate, an aliphatic multifunctional acrylate, an aliphatic monofunctional methacrylate, or an aliphatic multifunctional methacrylate.

Claim 13 was amended as follows:

(13) A curable blend according to Claim 1 wherein the reactive component is [a polyoxyalkylene monofunctional or multifunctional acrylate or methacrylate] selected from the group consisting of: a polyoxyalkylene monofunctional acrylate, a polyoxyalkylene

multifunctional acrylate, a polyoxyalkylene monofunctional methacrylate, or a polyoxyalkylene multifunctional methacrylate.

Claim 25 was amended as follows:

(25) A coated substrate wherein the coating comprises a crosslinked composition prepared from a homogeneous blend comprising:

(a) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) more than 25% based on weight of a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(c) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the bis-phenol-A derivative.

Claim 39 was amended as follows:

(39) A process for preparing a coated substrate comprising:

(a) obtaining a substrate with a clean surface,

(b) applying a coating to the substrate wherein the coating comprises a homogeneous blend comprising:

(x) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(y) more than 25 percent based on weight of a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(z) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the bis-phenol-A derivative, and

(c) [exposing] curing the homogeneous blend by exposing said blend to a sufficient level of a predetermined form of radiant energy.

Claim 40 was amended as follows:

(40) A process for preparing a coated substrate according to Claim 39 wherein the radiant energy is derived from a source which is a member selected from the group consisting of electron beam, ultraviolet, radiofrequency, infrared, and combinations thereof.

Claim 41 was amended as follows:

(41) A process for preparing a coated substrate according to Claim 40, wherein the substrate is [is a metal that couples] an electrically conductive material that is heated in a radiofrequency induction field to [generate heat and] initiate catalyst activity.

Claim 42 was amended as follows:

(42) A process for preparing a coated substrate comprising:

(a) obtaining a substrate with a clean surface,

(b) applying a coating to the substrate wherein the coating comprises a homogeneous blend comprising:

(w) a 1,2 – polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(x) more than 25 percent based on weight of a bis-phenol a derivative that is end-capped with acrylate functionality, and

(y) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2 – polybutadiene oligomer and the bis-phenol-A derivative, and

(z) a ground state catalyst that initiates free radical cross-linking upon exposure to heat, and

(c) [exposing] curing the homogeneous blend by exposing said blend to a sufficient level of a predetermined form of radiant energy.

The following new claims were added:

(44) A curable homogeneous blend comprising:

(a) a 1,2-polybutadiene copolymer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(c) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the acrylated bis-phenol-A derivative.

(45) A curable blend according to Claim 44 wherein the 1,2-polybutadiene copolymer is prepared from butadiene and a vinyl monomer that is a member selected from the group

consisting of: styrene, vinyl acetate, divinyl benzene, isoprene, chloroprene, alkyl acrylates, alkyl methacrylates, ethylene, propylene, butylene and mixtures thereof.

(46) A curable homogeneous blend comprising:

(a) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) an epoxy prepared from epichlorohydrin and bis-phenol-A that is end-capped with acrylate functionality, and

(c) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the acrylated bis-phenol-A derivative.

(47) A curable homogeneous blend comprising:

(a) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(c) a reactive component substituted with long chain alkyl or alkoxy segments that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the acrylated bis-phenol-A derivative.

(48) A curable blend according to Claim 47 wherein the substituted reactive component is a member selected from the group consisting of: alkoxylated nonyl phenol acrylate and alkoxylated nonyl phenol methacrylate.

(49) A curable homogeneous blend comprising:

(a) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(c) a heterocyclic reactive organic compound that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the acrylated bis-phenol-A derivative.

(50) A curable blend according to Claim 49 wherein the heterocyclic compound is a member selected from the group consisting of: n-vinyl pyrrolidone and methyl-n-vinyl pyrrolidone.

(51) A curable homogeneous blend comprising:

(a) a 1,2-polybutadiene oligomer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) a bis-phenol-A derivative that is end-capped with acrylate functionality,

(c) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the acrylated bis-phenol-A derivative, and

(d) a hydroxy functional adhesion promoter.

(52) A curable blend according to Claim 50 wherein the hydroxy functional compound is a member selected from the group consisting of hydroxyethyl methacrylate and ethoxylated hydroxyethyl methacrylate.

(53) A coated substrate wherein the coating comprises a crosslinked composition prepared from a homogeneous blend comprising:

(a) a 1,2-polybutadiene copolymer having a number average molecular weight (Mn) of about 500 Daltons to about 50,000 Daltons,

(b) a bis-phenol-A derivative that is end-capped with acrylate functionality, and

(c) a reactive component that has at least one terminal double bond and that enhances the compatibility between the 1,2-polybutadiene oligomer and the bis-phenol-A derivative.

(54) A coated substrate according to Claim 52 wherein the 1,2-polybutadiene copolymer is prepared from butadiene and a vinyl monomer that is a member selected from the group consisting of: styrene, vinyl acetate, divinyl benzene, isoprene, chloroprene, alkyl acrylates, alkyl methacrylates, ethylene, propylene, butylene and mixtures thereof.

(55) A coated substrate according to Claim 52 wherein the bis-phenol-A derivative is prepared from epichlorohydrin and bis-phenol-A.